

Technological Advances and Society

Student Learning Outcome: Students will describe a technology and its impact on a given society and evaluate the impact of that technology on society, within a domain.

The Value of Technological Advances and Society

Technological changes have driven societal change since ancient times. These changes continue to accelerate in the contemporary world, creating both opportunities and challenges. Technological literacy is essential to navigating the challenges humanity faces. Technological Advances and Society courses explore how the dynamics of technological advancements impact society on almost every level and in all areas of our lives. These courses give student an understanding of the evolution of technology and the ways that technological change

impact society, both positively and negatively. Understanding the relationship between technological change and society fosters a relational understanding about the impacts, intended and unintended, of innovation on human beings and their environments, and this, in turn, helps students to understand the problems and challenges of our world and helps them conceive of solutions to those challenges.

Supporting Skills

1. Students will describe a particular technology or set of technologies that have/has significant societal impact.
2. Students will describe the impact of a particular technology or set of technologies on a given society or societal context.
3. Students will evaluate the impact of a particular technology or set of technologies on a given society or societal context.

Course Content Criteria

1. Courses in this category have, as a primary focus, the relationship between technology and society.
2. Courses in this category explain the nature, structure, and/or use of a particular technology or technologies.
3. Courses in this category explore the impact of technology on a particular domain.
4. Courses in this category explore the impact of technological change on society.
5. Courses in this category include an assessment assignment that requires students to demonstrate each of the skills in the Technological Advances and Society Assessment Rubric (below). This assessment assignment should be one of the following: an objective exam, an essay question on an exam, an essay, or a research paper.

Glossary

1. **Domain:** A specified sphere of activity or knowledge (*Oxford English Dictionary*, Oxford University Press, 2020).
2. **Society:** A group of individuals, all of the same species, in which there is some degree of cooperation, communication, and division of labor” (*Oxford English Dictionary*, Oxford University Press, 2020).
3. **Technological change:** The overall process of invention, innovation, and diffusion of technology (E.M. Rogers, 1962).
4. **Technological literacy:** One’s ability to use, evaluate, and understand technology (ITEA, 2000–2002).
5. **Technology:** The application of scientific knowledge for practical purposes, especially in industry, or machinery and equipment developed from the application of scientific knowledge (e.g., “advances in computer technology”), or the branch of knowledge dealing with engineering or applied sciences (*Oxford English Dictionary*, Oxford University Press, 2020).

Technological Advances and Society Assessment Rubric

Supporting Skills	Exemplary 4	Accomplished 3	Developing 2	Beginning 1
Describe a particular technology or set of technologies that have significant societal impact.	The description demonstrates a thorough, deep, and comprehensive understanding of the chosen technology or set of technologies, including its intended use, its historical evolution, and its underlying principles. The description is highly informative and insightful, showcasing a mastery of the subject matter.	The description demonstrates a solid understanding of the chosen technology or set of technologies and conveys, in broad terms, its intended use, its historical evolution, and its underlying principles. The description is informative and coherent but may lack depth or insight.	The description demonstrates a basic but limited understanding of the chosen technology or set of technologies; the description relies on surface-level information and may fail to clearly convey the technology's intended use, its historical evolution, and its underlying principles.	The description demonstrates extremely limited or no understanding of the chosen technology or set of technologies; there are evident gaps in knowledge and key concepts may be misrepresented or absent; the description fails to convey the technology's intended use, its historical evolution, and/or its underlying principles.
Describe the impact of a particular technology or set of technologies on a given society or societal context.	The student provides a highly detailed, nuanced, and comprehensive description of the technology's impact on the given society or societal context. The description covers a wide range of relevant aspects, demonstrating a deep understanding of the technology's effects.	The student offers a generally sound, somewhat detailed description of the technology's impact on society or societal context, considering some relevant aspects and providing a general overview. The description is general, but informative.	The student offers a somewhat limited description of the technology's impact. The description offers only a partial exploration of relevant aspects of the technology's impact. The discussion lacks depth in some areas.	The student struggles to describe the impact of the technology on society. The description is unclear and superficial. Key aspects of the technology's impact on society are missing or misstated.
Evaluate the impact of a particular technology or set of technologies on a given society or societal context.	The student provides a comprehensive analysis of the societal impact of the technology, discussing both its positive and negative consequences in depth. The evaluation is heavily supported by a rich array of evidence, data, and examples. There is a clear connection between the evidence presented and the conclusions drawn, enhancing the credibility of the evaluation.	The student offers a solid analysis of the societal impact of the technology, covering both positive and negative aspects adequately. The evaluation is well-supported by evidence, data, and examples, demonstrating a strong connection between the information presented and the conclusions made.	The student's analysis of the societal impact is limited, focusing primarily on either positive or negative consequences, without a well-rounded perspective. The student's use of evidence and data is limited or may not always directly support the conclusions. There may be gaps in the use of evidence.	The student struggles to provide an analysis of the societal impact, providing only a superficial overview of positive or negative consequences. The evaluation lacks evidence, making it challenging to substantiate the conclusions drawn.